



The Hidden Link Between Bedrock and Clean Water

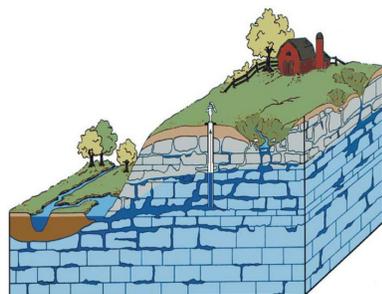
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Karst: boon and bane for clean water

The rivers, lakes, and streams of Northwest New Jersey are second to none. They sustain farms and vineyards; attract wild trout and weekend visitors; and leave us with unforgettable memories of the outdoors. Our main streets and property values depend on these natural riches, while millions of New Jersey households rely on our region for clean, affordable drinking water.

So what makes our waters so extraordinary?

They receive a steady supply of clean, clear, and cold water from underground, made possible because much of the Northwest sits on Swiss cheese-like bedrock known as limestone karst.



All surface waters—rivers, lakes, and streams—are replenished by rainfall and stormwater runoff. But in Northwest New Jersey, where karst bedrock is prevalent, up to 40% of the water supply is fed by groundwater that flows through the rock's passages, sinkholes and underground springs. On one hand, this inflow of groundwater is a major asset to the region; it keeps water levels healthy, even during periods of low precipitation, and keeps water cool enough for beloved trout and other aquatic wildlife to thrive. But for all of the good that karst provides, it is delicate and lacks the ability to filter pollution from the water flowing through its channels. Warm stormwater runoff, bacteria, and chemical pollutants gain easy access to the waters we use for drinking, fishing and swimming.

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Karst also makes the source of contamination in a river or stream hard to trace and remedy, because pollution released in one location may appear in waters many miles away—and in several different locations.



Handle with care: the effects of poor land use

Karst is more delicate and exposed in some parts of the region than others. Poorly sited development in these areas can have devastating and irreversible effects on the safety of both groundwater and surface waters. Of special concern are:

- Bacteria-laden discharges from septic and sewer systems
- Large volumes of contaminated stormwater from hard surfaces such as roads, driveways, and parking lots
- Pet waste and lawn care chemicals (fertilizers, herbicides, and pesticides) that can easily soak through thin soil layers when it rains.

The solution? Smarter zoning and statewide safeguards

Local leaders have made tremendous strides over the last several years to create solutions that work for both property owners and for drinkable, fishable waters. Members of the Great Waters New Jersey coalition can help build on that work by advising towns and municipalities on ways to write more protective zoning rules in the most vulnerable karst areas and install natural pollution filters, such as rain gardens, that can improve property values. To equip leaders to address this issue at a regional scale, we also recommend appealing to the New Jersey Department of Environmental Protection to bring both groundwater and surface waters under its care. The current patchwork of state protections, such as the Flood Hazard Area Control Act and Freshwater Wetlands Act, do not safeguard groundwater that reaches surface waters through underground karst.

By protecting the hidden network that keeps our waters fresh and abundant, we can hold onto what makes the New Jersey Highlands great for generations to come.